

Urban District Council

OF OSWALDTWISTLE.



Annual Report of the Medical Officer,

ALSO

REPORT UPON SANITATION

BY THE

Surveyor & Sanitary Inspector,

FOR THE


DISTRICT OF OSWALDTWISTLE,

Year ended 31st December, 1906.



OSWALDTWISTLE:

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*To the Chairman and Members of the Urban District
Council of Oswaldtwistle.*

GENTLEMEN,

I have the honour to submit to you my
Annual Report on the Health and Sanitary condition
of Oswaldtwistle, for the year ending December 31st
1906.



The Township lies between latitude 53 degrees 42 minutes and
53 degrees 45 minutes north, and longitude 2 degrees 21 minutes to
2 degrees 26 minutes west.

Boundaries of the District.	Altitude in Feet above sea level along the boundaries.
On the north by the districts of Church and Rishton, from 400 to 550	
On the south by Haslingden and Yate and Pickup	
Bank ,, 850 to 1225	
On the east by Accrington ,, 446 to 950	
On the west by Blackburn ,, 500 to 850	

Area. The Area of Oswaldtwistle comprises 4883 statute acres.

Population. The estimated population is 14,700. The census of 1901 gave a return of 14,192.

Taking the whole of the Township, the above figures give a density of population of 3 per acre, though the Urban portion of the district has a far greater density of population, being about 42 per acre.

Altitudes. At the boundary with Church,						Ft. above sea level.
at the bottom of Union Road ... the altitude is						423
At Moscow Mill Street...	...	...	...	..		450
Opposite the Town Hall	...	...	...	..		483
At the boundary with Blackburn, on Blackburn Road ...						
	...	...	...	..		490
At Mother Red Cap Inn, on Blackburn Road...						
				..		532
In New Lane, which is the highest part of the built up portion of the district ...						
				..		581
At the centre of Stanhill Village ...						
				..		598
At the Shoulder of Mutton Hotel, Cross Edge						
				..		874
At the National School, which is the highest portion of the Belthorn Village ...						
				..		1020

Occupations. The inhabitants are employed at various trades, viz: Chemical Manufacturing, Cotton Spinning and Weaving, Coal Mining, Paper Making, Calico Printing, and Milk Farming. A large proportion of the female inhabitants are employed in the cotton industry.

Births. During the year there were 382 births registered, of these 187 were males and 195 females, equal to a birth rate of 25.98 per 1000. Of the births 11 were illegitimate.

Table of Birth Rates for the last 12 years.

Year	Rate per 1000	Rate	Rate per 1000
1895	29.33	1901	26.62
1896	31.54	1902	27.44
1897	28.13	1903	26.85
1898	30.00	1904	21.91
1899	25.29	1905	23.96
1900	26.51	1906	25.98

The average birth rate for the past 12 years is 26.93 per 1000. The average rate for the County of Lancaster for 1905 was 25.06, compared with 23.56 per 1000 for Oswaldtwistle in that year, and 27.2 for the whole of England and Wales.

Deaths. During the year 223 deaths were registered in the district—110 males and 113 females, giving a crude annual death rate of 15.17 per 1000.

Two of the above deaths were of persons who were “non-residents” in the Township, one residing in Church and the other in Blackburn, making the total number of deaths of “residents” registered in the district 221.

In addition to these, 21 “residents” died outside the districts as follows:—Blackburn Infirmary 2, Blackburn Workhouse 15, Accrington Cottage Hospital 1, Accrington Borough 1, Lancaster County Asylum 1, Chorley 1.

Therefore the total number of deaths of “residents” is 242, 120 males and 122 females, as compared with 194 deaths in 1905, an increase of 48.

The death rate for the Township after the above correction is 16.46 per 1000 per annum, as against a death rate of 13.29 per 1000 per annum in 1905.

Table of Deaths during each month (corrected.)

	Males		Females		Total
January	9	...	10	...	19
February.....	9	...	8	...	17
March	14	...	8	...	22
April	10	...	10	...	20
May	11	...	9	...	20
June	5	...	9	...	14
July.....	10	...	14	...	24
August	12	...	15	...	27
September	9	...	9	...	18
October	7	...	11	...	18
November	13	...	11	...	24
December	11	...	8	...	19
	<hr/>		<hr/>		<hr/>
Total	120		122		242

Table of Deaths from all Causes at subjoined ages.

Under 1 year	1 to 5	5 to 15	15 to 25	25 to 65	65 and over
69	38	10	10	65	50

Comparative Birth and Death Rate Tables.

BIRTH RATE PER 1000					
	1881-85	1886-90	1891-95	1896-1900	1901-5
England & Wales.....	33.50	31.40	30.46	29.39	28.12
Oswaldtwistle	36.52	34.04	29.73	28.29	25.00

DEATH RATE PER 1000					
	1881-85	1886-90	1891-95	1896-1900	1901-5
England & Wales.....	19.4	18.8	18.7	17.74	16.0
Oswaldtwistle	20.96	21.44	17.21	17.22	15.59

Table of Death Rate for the last 12 years.

Year	Rate per 1000	Year	Rate per 1000
1895	17.21	1901	17.52
1896	15.21	1902	13.2
1897	18.3	1903	15.2
1898	14.3	1904	18.76
1899	18.51	1905	13.29
1900	19.74	1906	16.46

Table showing Births, Deaths, and Natural Increase during the last 12 Years.

Year	No. of Births	Rate per 1000	No. of Deaths	Rate per 1000	Natural Increase
1895 ...	419 ...	29.33	241 ...	17.2	178
1896 ...	448 ...	31.54	216 ...	15.21	232
1897 ...	422 ...	28.13	275 ...	18.33	147
1898 ...	465 ...	30.00	222 ...	14.32	243
1899 ...	392 ...	25.29	287 ...	18.51	105
1900 ...	411 ...	26.51	306 ...	19.74	105
1901 ...	386 ...	26.62	254 ...	17.52	132
1902 ...	398 ...	27.44	192 ...	13.2	206
1903 ...	392 ...	25.48	222 ...	15.2	170
1904 ...	320 ...	21.91	274 ...	18.76	46
1905 ...	344 ...	23.56	194 ...	13.29	150
1906 ...	382 ...	25.98	242 ...	16.46	140

Table.—Vital Statistics of Whole District during 1906 and previous Years.

Year	Population estimated to Middle of each Year	BIRTHS			Total Deaths Registered in the District			Deaths of Residents registered in Public Institutions beyond the District		Net Deaths at all ages belonging to the District	
		Number	Rate*	Under 1 year of age	Rate per 1000 Births registered	Number	At all ages	Rate*	9	10	11
		3	4	5	6	7	8				
1896	14200	448	31.54	61	136	—	...	—	...	216	15.21
1897	15000	422	28.13	92	163	—	...	—	...	275	18.32
1898	15500	465	30.00	73	156	—	...	—	...	222	14.32
1899	15500	392	25.29	80	204	—	...	—	...	287	18.51
1900	15500	411	26.51	73	177	—	...	—	...	306	19.74
1901	14500	386	26.62	81	210	—	...	—	...	254	17.52
1902	14500	398	27.44	55	138	—	...	18	...	192	13.20
1903	14600	392	26.85	52	132	199	13.71	23	...	222	15.20
1904	14600	320	21.91	61	191	254	17.41	20	...	274	18.76
1905	14600	344	23.56	49	142	178	12.19	16	...	194	13.29
Averages for Years											∞
1896-1905	14850	398	26.65	67	165	—	...	—	...	244	16.40
1906.....	14700	382	25.98	69	180.62	223	15.17	21	...	242	16.46

* Rates in columns 4, 8, and 11 calculated per 1000 of estimated population.

NOTE.—The Deaths included in column 7 of this Table are the whole of those registered during the year as having actually occurred within the district or division. The Deaths included in column 10 are the number in column 7, corrected by the addition of the number column 9.

By the term “Residents” is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere; and by the term “Non-Residents” is meant persons brought into the district on account of sickness or infirmity and dying here.

The “Public Institutions” taken into account for the purposes of these tables are those into which persons are habitually received on account of sickness or infirmity, such as hospitals, workhouses and lunatic asylums.

Table.—Causes of and Ages at Death during Year 1906.

Deaths at the subjoined ages of "Residents" whether occurring in or beyond the District.

Causes of Death	All Ages	Under 1 year	1 and under 5	5 and under 15	15 and under 25	25 and under 65	65 and upwards
Smallpox.....	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Measles	13 ...	4 ...	9 ...	0 ...	0 ...	0 ...	0
Scarlet Fever	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Whooping Cough	4 ...	0 ...	4 ...	0 ...	0 ...	0 ...	0
Diphtheria and Mem- branous Croup ...	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Croup	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Fever { Typhus	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
	Enteric	3 ...	3 ...	0 ...	0 ...	0 ...	0
	Other continued	0 ...	0 ...	0 ...	0 ...	0 ...	0
Epidemic Influenza ...	1 ...	0 ...	0 ...	0 ...	0 ...	1 ...	0
Cholera	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Plague	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Diarrhœa	26 ...	21 ...	4 ...	0 ...	0 ...	1 ...	0
Enteritis	1 ...	0 ...	1 ...	0 ...	0 ...	0 ...	0
Puerperal Fever.....	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Erysipelas	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Other Septic diseases...	1 ...	0 ...	0 ...	1 ...	0 ...	0 ...	0
Phthisis (Pulmonary Tuberculosis)	9 ...	0 ...	1 ...	0 ...	3 ...	5 ...	0
Other Tubercular diseases	15 ...	5 ...	3 ...	4 ...	2 ...	1 ...	0
Cancer (Malignant diseases)	12 ...	0 ...	0 ...	0 ...	0 ...	9 ...	3
Bronchitis	21 ...	6 ...	2 ...	0 ...	0 ...	6 ...	7
Pneumonia	19 ...	4 ...	5 ...	1 ...	3 ...	5 ...	1
Pleurisy	0 ...	0 ...	0 ...	0 ...	0 ...	0 ...	0
Other diseases of Respiratory organs	5 ...	1 ...	2 ...	0 ...	0 ...	1 ...	1
Alcoholism (Cirrhosis of Liver).....	1 ...	0 ...	0 ...	0 ...	0 ...	1 ...	0
Venereal diseases	2 ...	1 ...	0 ...	0 ...	0 ...	1 ...	0
Premature birth.....	9 ...	9 ...	0 ...	0 ...	0 ...	0 ...	0
Diseases and accidents of parturition	2 ...	0 ...	0 ...	0 ...	1 ...	1 ...	0
Heart disease	15 ...	0 ...	0 ...	1 ...	0 ...	11 ...	3
Accidents	6 ...	1 ...	0 ...	2 ...	0 ...	1 ...	2
Suicides	2 ...	0 ...	0 ...	0 ...	0 ...	2 ...	0
All other causes.....	75 ...	17 ...	4 ...	1 ...	2 ...	20 ...	31
All causes.....	242	69	38	10	11	66	48

Table showing the Causes of Deaths during the last 11 years.

Cause of Death	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906
Smallpox	0	0	0	0	0	0	0	0	0	0	0
Measles	0	11	0	1	20	1	1	1	27	0	13
Scarlet Fever.....	0	6	0	3	5	4	1	3	0	1	0
Whooping Cough	0	14	0	3	0	4	3	0	2	1	4
Diphtheria and Membranous Croup	1	0	2	1	5	12	5	0	0	1	0
Typhus Fever	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever	1	6	7	3	1	3	1	2	7	3	3
Other continued fever	—	—	—	—	—	—	—	—	0	0	0
Epidemic Influenza	—	—	—	—	—	1	2	—	2	2	1
Cholera	—	—	—	—	—	—	—	—	0	0	0
Plague.....	0	0	0	0	0	0	0	0	0	0	0
Diarrhoea	12	15	8	8	5	7	1	3	3	5	26
Enteritis.....	—	—	—	—	—	1	9	10	1	6	1
Puerperal Fever.....	1	1	0	1	1	0	0	0	0	1	0
Erysipelas	0	2	0	0	1	0	0	0	0	1	0
Other Septic diseases	—	—	—	—	—	—	—	—	0	0	1
Phthisis (Pulmonary Tuberculosis)	13	11	7	11	15	9	11	11	14	6	9

Other Tubercular diseases	—	—	—	—	—	19	14	6	13	12	15
Cancer (Malignant diseases)	—	—	—	—	—	10	5	7	11	16	12
Bronchitis	—	—	—	—	—	29	18	28	38	27	21
Pneumonia	—	—	—	—	—	22	12	12	21	13	19
Pleurisy	—	—	—	—	—	1	1	—	0	0	0
Other diseases of Respiratory organs.....	—	—	—	—	—	—	1	4	3	1	5
Alcoholism (Cirrhosis of Liver).....	—	—	—	—	—	1	3	8	2	2	1
Venereal disease	—	—	—	—	—	—	—	1	1	0	2
Premature birth	—	—	—	—	—	10	6	6	7	11	9
Diseases and accidents of parturition.....	—	—	—	—	—	2	6	3	5	3	2
Heart disease	13	17	18	21	9	10	12	18	13	13	15
Accidents	6	7	8	5	7	5	4	5	8	4	6
Suicides	—	—	—	—	—	2	—	3	4	3	2
All other causes.....	169	185	172	230	237	101	76	91	92	62	75
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All causes.....	216	275	222	287	306	254	192	222	274	194	242

INFANTILE MORTALITY DURING THE YEAR 1906.

Deaths from stated Causes in Weeks and Months under One Year of Age.

CAUSE OF DEATH		Under 1 Week	1-2 Weeks	2-3 Weeks	3-4 Weeks	Total under 1 Month	1-2 Months	2-3 Months	3-4 Months	4-5 Months	5-6 Months	6-7 Months	7-8 Months	8-9 Months	9-10 Months	10-11 Months	11-12 Months	Total Deaths under One Year
All Causes	{ Certified	12	3	1	3	19	8	4	5	5	9	3	4	2	1	3	6	69
	{ Uncertified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Common Infectious Diseases	{ Smallpox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	{ Chickenpox	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	{ Measles	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	4
	{ Scarlet Fever.....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	{ Diphtheria: Croup	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	{ Whooping Cough	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diarrhoeal Diseases	{ Diarrhoea, all forms	0	1	0	0	1	2	2	0	0	3	2	1	0	1	1	0	13
	{ Enteritis, Muco-enteritis }																	
	{ Gastro-enteritis }	0	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	4
	{ Gastritis, Gastro-intestinal Catarrh }	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	0	4

Infantile Death Rate. 69 deaths were registered of children under 1 year of age, representing for the period 180.62 deaths per 1000 births; this is somewhat higher than the rate for the previous year, viz : 142 deaths per 1000 births, though not much above the average for the past 11 years.

Diarrhœal diseases have been chiefly responsible for the large number of deaths amongst infants, no less than 21 being attributable to this group alone. 9 deaths have been due to Premature birth, 6 to Bronchitis, and 4 to Pneumonia.

Measles has proved fatal to four children under 1 year of age, and Tuberculous diseases to 5.

Table of Infantile Death Rate for the last 12 years.

Year	No. of Deaths	Deaths to 1000 Births	Year	No. of Deaths	Deaths to 1000 Births
1895	67	159	1901	81	210
1896	61	136	1902	55	138
1897	92	163	1903	52	132
1898	73	156	1904	61	191
1899	80	204	1905	49	142
1900	73	177	1906	69	180.62

Bronchitis caused 21 deaths compared with 27 in the previous year. 6 were in children under 1 year of age, 2 between 1 and 5 years, 6 between 25 and 65 years, and 7 in persons from 65 years of age upwards. No deaths occurred from this disease between the ages of 5 and 25 years.

Pneumonia caused 19 deaths compared with 13 in 1905, 4 were in children under 1 year of age, 5 between 1 and 5 years, 1 between 5 and 15 years, 3 between 15 and 25 years, 5 between 25 and 65 years, and 1 in a person over 65 years of age.

Pleurisy. There were no deaths from this disease.

Table of Deaths from Bronchitis, Pneumonia, and Pleurisy during the past 12 years.

Year	Deaths	Year	Deaths
1895	49	1901	52
1896	47	1902	31
1897	63	1903	40
1898	53	1904	59
1899	63	1905	40
1900	87	1906	40

Other diseases of the Respiratory organs, excluding Phthisis, have caused 5 deaths, making the total from these complaints 45, compared with 41 in the previous year.

Table of Deaths from Respiratory Diseases (excluding Phthisis,) in each Month.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
1906...	5	3	6	7	0	4	5	1	0	2	5	7	45
1905...	4	6	2	6	4	4	1	0	1	1	4	8	41

The death rate from Respiratory diseases, (excluding Phthisis,) is 2.72, compared with 2.74 in 1905.

Zymotic Diseases.

	Cases notified	Deaths
Diphtheria	10	0
Erysipelas.....	14	0
Scarlet Fever	40	0
Typhoid Fever.....	11	3
Puerperal Fever	1	0
Measles	0*	13
Whooping Cough.....	0*	4
Diarrhœa	0*	26
	<hr/> 76	<hr/> 46

* Not notifiable.

It will be seen from the above table that Zymotic diseases caused 46 deaths, giving an annual death rate of 3.12 per 1000. In 1905 the Zymotic death rate was only 0.89, the increase for the past year being due to the large number of deaths from Diarrhœa and Measles. The ordinary Infectious Fevers have caused 16 deaths, compared with 7 in the previous year.

Table of Zymotic Death Rate for the last 12 years.

Year	Deaths per 1000	Year	Deaths per 1000
1895	1.61	1901	1.65
1896 .....	.21	1902 .....	.75
1897	2.53	1903 .....	.41
1898	1.03	1904	2.67
1899 .....	.77	1905 .....	.89
1900	2.45	1906	3.12

Cases of Infectious Disease notified during the Year 1906.

Cases notified in whole district.—At Ages—Years.

Notifiable Disease	At all ages		Under 1	1 to 5	5 to 15	15 to 25	25 to 65	65 and upwards
Smallpox	0	...	0	.. 0	... 0	... 0	... 0	... 0
Cholera	0	...	0	... 0	... 0	... 0	... 0	... 0
Diphtheria	10	...	0	... 2	... 6	... 0	... 2	... 0
Membranous								
Croup	0	...	0	... 0	... 0	... 0	... 0	... 0
Erysipelas	14	...	0	... 1	... 2	... 4	... 7	... 0
Scarlet Fever...	40	...	0	... 11	... 26	... 2	... 1	... 0
Typhus Fever...	0	...	0	... 0	... 0	... 0	... 0	... 0
Enteric Fever...	11	...	0	... 4	... 3	... 4	... 0	... 0
Relapsing Fever	0	...	0	... 0	... 0	... 0	... 0	... 0
Continued Fever	0	...	0	... 0	... 0	... 0	... 0	... 0
Puerperal Fever	1	...	0	... 0	... 0	... 0	... 1	... 0
Plague.....	0	...	0	... 0	... 0	... 0	... 0	... 0
Totals ...	76		0	18	37	10	11	0

Smallpox. No cases of this disease occurred.

Diphtheria. Ten cases were notified, none of which ended fatally, compared with 4 cases and 1 death in 1905. No cases occurred in infants under 1 year of age, 2 were in children between 1 and 5 years, 6 between 5 and 15 years, and 2 between 25 and 65 years.

The disease was reported in six months out of the twelve as the following table shows:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0	2	0	2	0	0	2	2	0	1	1	0

Table of cases of Diphtheria, and Deaths therefrom,
during the last Nine years.

Year	Cases Notified	Deaths	Year	Cases Notified	Deaths
1898	4	1	1903	6	0
1899	—	1	1904	3	0
1900	—	5	1906	4	1
1901	30	12	1905	10	0
1902	14	5			

Erysipelas. 14 cases were notified, and no death occurred, compared with 13 cases and 1 death in the previous year.

One was in a child under 5 years of age, 2 between 5 and 15 years, 4 between 15 and 25 years, and 7 between 25 and 65 years.

It was reported in seven months out of the twelve as follows:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	5	2	1	1	0	0	0	0	1	0	3

Table of cases of Erysipelas notified, and Deaths therefrom, during the last Six years.

Year	Cases Notified	Deaths	Year	Cases Notified	Deaths
1901	10	0	1904	8	0
1902	6	0	1905	13	1
1903	9	0	1906	14	0

Scarlet Fever was reported every month except August and October, the total number of cases notified during the year being 40; no deaths resulted. In 1905 the same number of cases occurred, but one ended fatally.

In children between the ages of 1 and 5 years there were 11 cases, between 5 and 15 years 26 cases, between 15 and 25 years 2 cases, and over 25 years of age 1 case.

The following table shows the number of cases reported in each month:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
7	3	5	4	2	1	6	0	1	0	4	7

Table of cases of Scarlet Fever notified, and Deaths therefrom, during the last Nine years.

Year	Cases Notified	Deaths	Year	Cases Notified	Deaths
1898	13	0	1903	35	3
1899	94	3	1904	16	0
1900	—	5	1905	40	1
1901	71	4	1906	40	0
1902	45	1			

Typhoid or Enteric Fever. During the year 11 cases of Typhoid Fever were reported, three or 27.27 % proved fatal, compared with nine cases and a mortality of 33.3 % in the previous year.

Four cases occurred in children between 1 and 5 years of age, 3 between 5 and 15 years, and 4 between 15 and 25 years. All the deaths were of children between 1 and 5 years of age.

It was reported in seven months of the year as follows:—

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0	1	0	1	0	0	0	1	2	2	1	3

Table of cases of Typhoid Fever notified, and Deaths therefrom, during the last Nine years.

Year	Cases Notified	Deaths	Year	Cases Notified	Deaths
1898	27	7	1903	7	2
1899	16	3	1904	14	7
1900	—	1	1905	9	3
1901	9	3	1906	11	3
1902	9	1			

Puerperal Fever. One case was reported—in the month of February—the patient recovering. In 1905 two cases occurred and 1 death resulted.

Table of cases of Puerperal Fever notified, and Deaths therefrom, during the last Eight years.

Year	Cases Notified	Deaths	Year	Cases Notified	Deaths
1899	1	1	1903	0	0
1900	—	1	1904	1	0
1901	0	0	1905	2	1
1902	0	0	1906	1	0

Measles. Since this disease is not notifiable it is impossible to state even approximately how many cases have occurred during the past 12 months, but there has been a considerable number in the district during the latter half of the year, and in the months of July, August, and September the epidemic became very extensive.

13 deaths occurred from this disease, all children under 5 years of age, 4 of the number being infants under 12 months old. 1 death occurred in February, 3 in July, 6 in August, and 3 in September.

In the month of June, on account of the number of children attacked who were attending Holy Trinity School, it was decided to close the infant department for a period of 21 days, and in the meantime the premises were thoroughly disinfected.

In July, a very extensive outbreak of Measles occurred in St. Andrew's School; in this case it was decided not to close the school, but to forbid any children from infected houses attending until two weeks had elapsed from the time of recovery of the child or children attacked.

The epidemic gradually abated during August when the schools were closed for the summer holiday.

**Table of Deaths from Measles for the last
Nine years.**

Year		Deaths	Year		Deaths
1898	...	0	1903	...	1
1899	...	1	1904	...	27
1900	...	20	1905	...	0
1901	...	1	1906	...	13
1902	...	1			

It is a popular though erroneous idea that every child should have Measles, and this leads to a large number of cases occurring which could have been prevented, for I have known instances of mothers purposely bringing their children into infected houses that they might contract the disease and "get it over." If parents could only be taught that Measles is no more essential to a child's well-being than Scarlet Fever, Diphtheria, or any other infectious fever, I have no doubt that the number of cases would be very materially diminished.

Whooping Cough. This disease also is not notifiable, so that it is impossible to estimate the number of cases which occurred during the year; it is safe to say however that it has been more or less in evidence during the whole of the period, and has accounted for 4 deaths, all children between the ages of 1 and 5 years.

Table of Deaths from Whooping Cough for the
last Nine years.

Year		Deaths	Year		Deaths
1898	...	0	1903	...	0
1899	...	3	1904	...	2
1900	...	0	1905	...	1
1901	...	4	1906	...	4
1902	...	3			

Diarrhœa has been unusually prevalent during the year, and has caused more deaths than any other disease. As mentioned under the heading of Infantile death rate Diarrhœal diseases as a whole have carried off no less than 21 children under 1 year of age, and the total deaths at all ages from these disorders reaches 26, excluding one due to Enteritis.

No doubt the extreme heat experienced during part of the summer has contributed in no small measure to this heavy mortality, though apart from this, improper feeding of infants and young children must be held to be chiefly responsible for the large number of deaths. I need not again refer to the old-fashioned feeding bottles with long rubber tubes as being one of the most common causes of the diseases, since in my previous reports I have condemned them repeatedly.

Your Council towards the end of the year decided to issue and distribute printed cards giving instructions to mothers in the proper methods of feeding infants, and it is hoped that this step will help to diminish the mortality from Diarrhœa and kindred diseases.

Table of Deaths from Diarrhœa for the last
Nine years.

Year		Deaths	Year		Deaths
1898	...	8	1903	...	3
1899	...	8	1904	...	3
1900	...	2	1905	...	5
1901	...	7	1906	...	26
1902	...	1			

Phthisis and other Tubercular Diseases. 9 deaths were registered as due to Phthisis and 15 to Tubercular disease of organs other than the lungs, making a total of 24, compared with 18 in 1905.

8 of the deaths from Phthisis were in persons between the ages of 15 and 65 years, and 1 in a child under 5 years of age.

The death rate from Phthisis is 0.61, compared with 0.41 in the previous year.

Table of Deaths from Phthisis during the last 12 years.

Year	Deaths	Death Rate	Year	Deaths	Death Rate
1895	10	0.71	1901	9	0.62
1896	13	0.91	1902	11	0.75
1897	11	0.73	1903	11	0.75
1898	7	0.45	1904	14	0.95
1899	11	0.71	1905	6	0.41
1900	15	0.96	1906	9	0.61

The death rate from Tubercular disease of organs other than the lungs is 1.02, compared with 0.82 in 1905.

Deaths from Tubercular Diseases of Organs other than the Lungs during the past Six years.

Year	Deaths	Death Rate	Year	Deaths	Death Rate
1901	19	1.31	1904	13	0.89
1902	14	0.96	1905	12	0.82
1903	6	0.41	1906	15	1.02

The general public do not sufficiently recognise the fact that Tuberculosis, or Consumption as it is popularly called, is an Infectious disease, and is therefore more or less preventable. Notification of cases would no doubt prove beneficial, since printed instructions could be sent to each house where the disease occurred, explaining the means of preventing its spread from the sufferers to those with whom they come in contact.

In case of death from Consumption, the house should be carefully disinfected, as the germs of the disease remain potent in all probability for years, and may infect individuals occupying the room long after the death of the original case.

The Council will carry out this work at any time free of charge on request.

The expectoration is the chief source of dissemination of the disease, and for this reason consumptives ought to take special precaution in the disposal of their sputum. They ought always to carry a supply of handkerchiefs to receive the secretion, and take the first

opportunity of burning them after use. Sputum which has become dried is particularly dangerous, and by infecting the air in the form of fine dust may be the means of communicating the malady to healthy persons by being inhaled in the process of respiration.

Influenza has been very widespread during the year and has caused the death of one adult. A remarkable outbreak occurred at St. Mary's School, Cocker Brook, in the month of March, every scholar I believe without exception, contracted the disease, and even the headmistress and teachers did not escape. In consequence of this the school was closed for a period of 11 days, and thoroughly fumigated and disinfected.

Table of Deaths from Epidemic Influenza during the last Six years.

Year	Deaths	Year	Deaths
1901	1	1904	2
1902	2	1905	2
1903	—	1906	1

Cancer has caused 12 deaths, equal to an annual death rate of 0.81 per 1000. 9 were in persons between the ages of 25 and 65 years, and 3 in persons over 65 years of age. 3 occurred in males and 9 in females. The death rate from Cancer is 0.81 compared with 1.09 in 1905.

The following Table shows the details of Deaths due to Cancer.

	Males	Females
Cancer of Stomach	2	0
„ Stomach and Liver ...	0	2
„ Uterus	0	1
„ Rectum	0	2
„ Rectum and Bladder ..	1	0
„ Œsophagus	0	1
„ Breast	0	1
„ Upper Jaw.....	0	1
„ Pharynx	0	1
Total (12)	3	9

Table of Deaths from Cancer during the past Six years.

Year	Deaths	Death Rate	Year	Deaths	Death Rate
1901	10	0.69	1904	11	0.75
1902	5	0.34	1905	16	1.09
1903	7	0.48	1906	12	0.81

Table showing Mortality Statistics in certain Towns in 1906.

	Estimated Population	Birth Rate	Death Rate (crude)	Death Rate (corrected)	Infant Deaths per 1000 Births	Zymotic Death Rate	Respiratory Death Rate	Phthisis Death Rate	Death Rate from other forms of Tuberculosis	Cancer Death Rate	Average Death Rate for 10 years 1896-1905
Accrington ...	45,000	21.68	12.97	13.37	132.17	1.42	2.00	0.91	0.31	0.71	15.39
Blackburn ...	133,583	25.6	16.9	16.4	155	2.42	2.6	0.9	0.5	0.80	18.6
Burnley ...	102,914	27.5	19.7	—	212	4.3	5.75	1.36	0.53	0.81	19.46
Clayton-le-Moors	8,700	28.8	13.6	14.2	139	1.8	1.7	1.03	0.34	0.68	17.10
Darwen ...	41,164	19.7	12.4	13.1	136	1.14	3.64	0.46	0.31	0.89	16.3
Church ...	6,800	21.76	14.26	16.32	128.4	1.32	1.76	0.88	—	—	—
Haslingden ...	19,116	19.87	15.58	16.58	132.2	1.56	3.08	1.36	0.31	0.62	—
Oswaldtwistle	14,700	25.98	15.17	16.46	180.62	3.12	2.72	0.61	1.02	0.81	16.40

House Accommodation. The old insanitary property is gradually disappearing, and during the past year a number of houses which were unfit for human habitation have been condemned, and the owners instructed to alter and improve them structurally or otherwise close them up.

The following houses were condemned :—

Nos. 35, 37, 39, and 41, Union Road.

„ 2 and 3, Bottoms.

Also 17 old delapidated cottages and shops in Union Road and Swainson Street have been purchased by the Council, to be pulled down for street widening purposes.

In the case of the seven houses at Lottice Bridge which were condemned in 1905, an order was obtained from the Magistrates to compel the owner to close them until the improvements and alterations specified had been carried out. The houses are now closed.

Several houses were found which, although not structurally defective, were so filthy as to be prejudicial to health, and in these cases notices were sent to the owners and tenants to cleanse and whitewash the premises without delay.

An increase in the number of mills and large extensions of others has taken place during the year, and in consequence work has been found for a great number of additional hands, but the building of house property has not proceeded quickly enough to accommodate the growing population, and many being unable to get dwellings in the Township are compelled to travel daily from neighbouring towns to their employment. There is no doubt that a certain amount of overcrowding of houses has also been due to this cause.

There are no common lodging houses in the Township.

Water Supply. The Township is supplied with water by two reservoirs, Jackhouse—capacity 68,000,000 gallons, and Cobbs—capacity 10,000,000 gallons; in addition to these there is a separate one for Belthorn village holding 800,000 gallons.

The Jackhouse and Cobbs reservoirs hold sufficient for 156 days' supply, after allowing 10,000,000 gallons for bottom water; and the Belthorn reservoir sufficient for 80 days' consumption, but the latter is assisted by springs which even in very dry weather keep the supply equal to the demand.

During the past year, the Council have obtained a provisional order from the Local Government Board, to enable them to acquire compulsorily the Standerly and White Syke farms which stand on the gathering ground, and were considered a source of contamination of the water supply.

The work of improving the residuum reservoir at Jackhouse is well advanced, and when completed there will be a considerable increase in the storage capacity, and an improvement in the quality of the water.

The Cobbs reservoir is also being deepened, enlarged, and improved; but it will be some time yet before the work is finished.

Factories and Workshops. There are 65 of these workshops which have been inspected on various occasions, and complete particulars of the matters required to be complied with, under the Factory and Workshops Act, have been taken and entered in the Workshops Record Book.

HIPPINGS VALE MILL.—The sanitary accommodation was found defective, notice was sent, and the 16 closets have been improved and made satisfactory.

MOSCOW MILL HEALD & ROPE WORKS.—The pails closets have been altered to the water system.

ENFIELD MANUFACTURING Co.—The closets have been altered to the water system.

STONE BRIDGE MILL.—Additional W.C's have been provided.

ROE GREAVE MANUFACTURING Co.—The W.C's have been altered and improved.

Damp closet floors were found in two cases, two notices were sent in respect to whitewashing, and one in respect to defective closet accommodation.

Factories, Workshops, Laundries, and
Workplaces.

I.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors
of Nuisances.

Premises (1)	Number of		
	Inspections (2)	Written Notices (3)	Prosecutions (4)
Factories (Including Factory Laundries)	7	1	0
Workshops (Including Workshop Laundries)	65	2	0
Workplaces (Other than Outworkers' premises)		0	0
Total	72	3	0

2.—DEFECTS FOUND.

Particulars (1)	Number of Defects			Number of Prosecutions (5)
	Found (2)	Rem- edied (3)	Refer- red to H.M. Ins- pector (4)	
Nuisances under the Public Health Acts :—*				
Want of cleanliness	2	2	0	0
Want of ventilation	0	0	0	0
Overcrowding	0	0	0	0
Want of drainage of floors	1	1	0	0
Other Nuisances	0	0	0	0
Sanitary accommodation { insufficient	4	4	0	0
{ unsuitable or defective	2	1	0	0
{ not separate for sexes	0	0	0	0
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (s101)	0	0	0	0
Breach of special sanitary requirements for bake- houses (ss. 97 to 100)	0	0	0	0
Other offences (Excluding offences relating to outwork which are included in part 3 of this report)	0	0	0	0
Total	9	8	0	0

* Including those specified in sections 2, 3, 7, and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

3.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year (1)	Number (2)
Bakers and Confectioners	8
Dress Makers and Milliners	9
Tailors	6
Boot Makers and Cloggers	12
Harness Maker	1
Joiners	4
Cabinet Makers	2
Plumbers	2
Painters	5
Smiths	4
Wheelwrights	2
Jeweller	1
Tinsmiths	3
Chemical Manufacturer	1
Paper Tube Maker	1
Motor Car Builder	1
Tallow Refiner	1
Preserving Works	1
Laundry	1
Total number of Workshops on Register ..	65

4.—OTHER MATTERS.

Class (1)	Number (2)
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory & Workshop Act (s. 133) ..	None
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5.)	<div> <div>Notified by H.M. Inspector</div> <div>Reports (of action taken) sent to H.M. Inspector..</div> </div>
Other	None
Underground Bakehouses (s. 101) :—	
Certificates granted during the year	None
In use at the end of the year	None

Dairies, Cowsheds, and Milkshops. These have been inspected from time to time, and whenever sanitary defects were found, the owners were communicated with to remedy them.

On the whole, the drainage, lighting, ventilation, and general cleanliness of the farms shows marked improvement, though there are still some which are not quite what they might be, and will require attention.

Isolated dairies are being gradually introduced in place of those which communicate with the interior of the farmhouse.

Underground Bakehouses. There are now no underground bakehouses in the Township.

Slaughter Houses. The slaughter houses have been examined periodically and found clean and whitewashed.

A steam boiler has been provided at the Council's slaughter house to generate steam for scalding pigs. A man has also been appointed to look after the boiler and keep the premises clean.

Offensive Trades. I have received no complaints as to the offensive trades carried on in the district.

Black Smoke. The time limit allowed for the emission of black smoke is 8 minutes per hour.

Observations have been taken from time to time, but no case has occurred in which the limit has been exceeded.

Removal and Disposal of House Refuse. The work continues to be carried out by the employees of the Council, but I think that the number of men engaged in the scavenging department is insufficient, and as a consequence the ashes places and middens are not emptied as often as they might be. This is a matter which deserves the attention of your Council, since it is most prejudicial to health for an accumulation of refuse to lie in close proximity to dwelling houses longer than is absolutely necessary, especially during the summer months.

Disposal of Excrement. The Council continue to take out the old stone soughs in the back roads, and have laid new sanitary pipe sewers with ventilating manholes in seven back streets, and the owners have converted the old privies to the water closet system in four of them. Considerable progress has been made but there are still a number of objectionable privies that require alteration.

Disinfection in all cases of notifiable infectious diseases is carried out as efficiently as possible in the absence of a fever hospital. Cases are isolated, as far as we are able, in the premises in which they occur,—always a difficult matter in cottage houses. Printed forms with the requisite precautions are supplied, and at the end of the illness, the rooms are thoroughly disinfected with formic aldehyde and sulphur fumes.

Your Council's Smallpox Hospital is always kept in readiness in case the disease should occur.

Sewerage, Drainage, and Sewage Disposal. The built-up portion of the district is gradually becoming sewered throughout with sanitary glazed pipes, cemented joints, and adequate ventilating manholes and lampholes.

A great many of the house drains have in recent years been overhauled in converting the privies to the water closet system, and in each case the works required to be done in relaying the drains have been under the supervision of the Council.

Strict attention is paid to slop-stone pipes, gullies, and downspouts, to see that the dish-stones are made firm with cement, and the joints to the pipes air-tight.

In some of the houses examined, the slop-pipes have been found defective, allowing the waste water to run into the foundations of the buildings. In these cases steps are immediately taken to have the defects remedied.

The sewage is dealt with at the Outfall works in open septic tanks, and then passed through nine feet deep revolving sprinkler filter, the final treatment being upon the land filter areas.

Observations. An examination of the various tables which I have included in this report, will give in the clearest possible manner the health conditions of the Township, and will explain more simply than words, the main factors relating to the sanitary state of the district. Some have been arranged in accordance with the requirements of the Local Government Board, and others have been designed by myself to give in a concise form the chief statistics relating to the past year. A few comments however may not be out of place.

The Birth Rate. As will be seen from the table, the birth rate for 1906 shows an increase over the rates for the years 1904 and 1905 of 4.07 and 2.42 respectively.

Compared with 25 years ago however, we find a marked difference; in 1882 the birth rate was 39.36 per 1000, and since then it has gradually decreased, the average for the last 10 years being only 26.65. The explanation of this diminution is very difficult, and opens up some most complex questions. It is not confined to this district alone, but forms part of a general decrease all over the county.

The Death Rate. I have this year worked out two death rates, the "crude death rate" which includes the total deaths registered in the district whether of "residents" or "non-residents," and the "corrected death rate" which includes deaths of all "residents" in the district whether they occurred within or without the Township, but excluding the deaths of persons from other localities which occurred here.

The "crude" annual death rate is 15.17 per 1000, and after correction the figures are 16.46, this is the true rate for the Township during 1906. The average rate for the 10 years—1896-1905 is 16.40, practically the same as for the past year.

Diarrhoea has caused the largest number of deaths, being responsible for no less than 26, bronchitis caused 21, and pneumonia 19.

The full details of the deaths from these and other diseases are given in the preceding tables.

The natural increase during the year is 140, as against 150 in the year 1905. The average for the last 12 years is 154.5. The slight decrease is due not to a diminished birth rate, but to a somewhat considerable increase in the number of deaths over the previous year.

It is to be regretted that this Township does not possess a District Nurse. Some years ago an effort was made to raise funds for this purpose, but unfortunately through want of support the idea had to be abandoned. I think I am not wrong in saying that for a large district like ours we must be unique in having no nursing facilities whatever for the working classes, and I consider it most desirable that steps should be taken to appoint one or more nurses to devote their skill to those who are in need of trained assistance in time of sickness.

In almost every town of any size, many of them of far less importance than ours, district nurses were appointed years ago, and are doing most excellent work.

I intend in the course of two or three weeks to test the feeling of the townspeople on this matter, and if sufficient support is forthcoming, as I have no doubt will be the case, steps will immediately be taken to procure at least one nurse, and I sincerely hope that your Council will give their support to the scheme, in the interests of the health of the district.

I am, Gentlemen,

Yours faithfully,

ALFRED E. TOWNLEY, M.B., Ch.B.,

Medical Officer of Health.

REPORT for the year ended 31st December, 1906, by ROBERT N. HUNTER, Surveyor and Sanitary Inspector.

To the Chairman and Members of the Oswaldtwistle
Urban District Council.

Gentlemen,

*I have the honour to submit to
you my twenty-third Annual Report as
Surveyor and Sanitary Inspector.*



The District lies between latitude 53 degrees 42 minutes and 53 degrees 45 minutes north, and longitude 2 degrees 21 minutes to 2 degrees 26 minutes west.

Boundaries of the District.	Altitude in feet above sea level along the boundaries.
On the north by the districts of Church and Rishton, from 400 to	550
On the south by Haslingden, and the Township of Yate and Pickup Bank	„ 850 to 1225
On the east by Accrington	„ 446 to 950
On the west by Blackburn	„ 500 to 850

SANITATION.

Sanitary improvements have continued to be made during the past year, by constructing and laying down new sewers in the district, to take the place of defective drains and the old stone soughs; also by altering the objectionable privy pits and open ash middens to the water carriage system, and building small dry ashes places.

Systematic inspections of the district have been made, and special attention has been given to these improvements, as they are among the most important of sanitary requirements.

It is found that the residents appreciate these improvements, as they remove from the back yards the unhealthy and foul excreta tanks.

During the year, 134 of these privies have been altered to the water carriage system, and small covered ashes places built; and three mills have been put on the water carriage system.

There are now altered to the water carriage system :

Houses	2196
Schools	8
Cotton Mills and Factories	18

Although progress has been made during the past year, there are still a number of these privies on the books to be altered, and the owners are being pressed to carry out the works required.

Houses Unfit for Habitation. 6 houses have been condemned as unfit for human habitation, viz :

Nos. 35, 37, 39, and 41 Union Road.
Nos. 2 and 3, Bottoms.

Also 17 old dilapidated cottages in Swainson Street and Union Road have been purchased by the Council to be pulled down for street widening purposes.

Also legal proceedings were taken to close the seven old houses at Lottice Bridge, and the Magistrates granted the order to close the cottages.

Scavenging. The work of scavenging is performed by the Council. The ashes places are systematically emptied, and the streets have been regularly swept. 4512 loads of domestic refuse, and 755 loads of street sweepings have been removed during the past year.

Disinfection. In all cases where infectious disease has been reported, the infected house has been inspected, and printed forms with the requisite precaution for each disease, also disinfectants, supplied. After the recovery of the patient, the premises and bedding, &c., have been disinfected and cleansed.

During the past year rooms have been disinfected—first with a spray of formalin upon the walls and floors, and then with formic aldehyde vapours. The bedding and clothing is dealt with in the disinfecting chamber, steam is applied and then dry heat.

Day Schools. On five occasions during the past year, each of the eleven day schools have had all the inside walls and floors sprayed over with formic aldehyde in solution, and the caretakers of the schools requested to wash and cleanse the floors and wainscotings, using a disinfectant in the water for cleansing same; also the water closets and drains have been disinfected with a solution of Izal.

Lodging House. There are no Common Lodging Houses in the district.

Sewage Works. For dealing with the sewage at the Outfall Works there are five tanks, three of these tanks are used as septic tanks, and two as storm tanks. The sewage is passed from the septic tanks upon nine feet deep revolving sprinkler filters, the final treatment is upon the land filter areas.

Smallpox Hospital. No cases have been reported during the year.

Ventilation of Houses. Further advance has been made in the practice of keeping bedroom windows partly open during the day and night, and thus obtaining the benefit of breathing the fresh air during the night. It is to be regretted that some people still prefer to sleep in a stuffy room with the windows tightly shut and the chimney flue blocked up.

Slaughter Houses. These have been inspected, whitewashed, and found clean.

Food, etc. Food has been inspected, but there has been no occasion to seize any.

Sewering. During the year further progress has been made in sewerage and paving the private streets and back roads.

The following streets have been completed during the year :

Oswald Street.

Bury Street.

Smithy Bridge Street, from White Ash Lane to Bury Street.

Bright Street.

Lock Street.

Vine Street.

Sewering and Paving (Back Roads.)

Back Road behind Roe Greave Road, from New Street off Roe Greave Road adjoining Rhoden Inn to New Street leading to Rhoden Mill.

Back Road between Church Street and Bismarck Street.

Back Road behind New Lane, from Bismarck Street to Duke Street.

Back Road behind New Lane, from Church Street to Bismarck Street.

Back Road opposite Bismarck Street, from Roe Greave Road to Commercial Street.

Back Road behind Roe Greave Road, from the Back Road opposite Bismarck Street to the New Street off Roe Greave Road adjoining the Rhoden Inn.

Back Road behind New Lane, from Duke Street to Grove Street.

Back Road between White Ash Lane and Bright Street, from Mason Street and White Ash Lane.

Back Road between James Street and Cross Street.

Flagging passage leading from Stone Bridge Lane to Mill Street.

Flagging passage leading from Mill Street to Shed Street.

Back Road between Victoria Street and Havelock Street, from Oak Street to Commercial Street.

Back Road between Monarch Street and Hodgson Street.

Back Road between West View and Albert Street.

Back Road between Bury Street and White Ash Lane, from Smithy Bridge Street to Oswald Street.

Back Road between Trinity Street and Roe Greave Road, from Bismarck Street to the Football Field.

Back Road between Victoria Street and Havelock Street, from John Street to Oak Street.

Road leading from Union Road to the New Jerusalem Church.

Also the **Sewering** of the following Back Roads, viz :

Back Sun Street.

Street off No. 410 Union Road.

Holly Street.

Back Road between Holly Street and Kay Street, from the
Back Road behind Harvey Street to the Back Road behind
Cross Street.

Back Road behind Harvey Street, from Holly Street to Kay
Street.

Back Road between Broadfield Street and High Street.

Back Road behind Broadfield Terrace, from Broadfield Street
to High Street.

Back Road between Union Road and Smithy Bridge Street,
from Nos. 404 to 410, Union Road.

During the year the whole of the granite sett paving and flagging of the footpaths of Blackburn Road—from the boundary with Church to the cricket field—has been completed, which has given great satisfaction to the residents in the West End district. The substitution of the paving for the macadam road has reduced the dust in the summer months and the sludge in the winter months, to a minimum.

Strict attention continues to be paid to the existing connecting pipes to all the slop gullies and downspouts to the cottages in the district, to see that the dishstones to the gullies are bedded in cement, and the joints to the pipes cemented and made airtight, to prevent the sewer gases from escaping from the drains into the foundations of the houses.

353 notices have been served for the abatement of various kinds of nuisances and the repairing and making good of defective house drains ; also the owners have been requested in a number of cases to open and repair blocked drains without waiting for a formal notice. A total of 325 nuisances have been remedied.

WATER SUPPLY.

The estimated population supplied with water from the Jackhouse and Cocker Cobbs Reservoirs in Oswaldtwistle district...	13500
In Church Council district	560
Belthorn Village in Oswaldtwistle.....	528

Total..... 14588

The top water line of the Jackhouse Reservoir is 635 feet above sea level. The top water line of the Cobbs Reservoir is 752 feet above sea level.

CAPACITY OF THE RESERVOIRS.

Jackhouse Reservoir, 36 feet 9 inches deep	...	68,000,000	gallons.
Cobbs Reservoir, 25 feet deep	... ..	10,000,000	„
		<hr/>	
		78,000,000	

The quantity of water supplied daily is about 435,000 gallons, distributed thus:—

Domestic purposes	245,000	gallons.
Trade purposes	60,400	„
Compensation water	129,600	„
		<hr/>
		435,000

The reservoirs will hold a supply, after allowing 10 million gallons for bottom water, equal to 156 days' consumption.

The consumption of water for all purposes equals 31 gallons per head per day.

The consumption of water for domestic purposes only equals 17 gallons per head per day.

The pressure in the water mains at the points named is as follows:—

Union Road, opposite Roe Greave Road	9 in. Main	60 lbs. per sq. in.
Harvey Street	6 „	72 „ „
Blackburn Road—Mr. Metcalf's Works.	4 „	90 „ „
Catlow Hall Street.....	3 „	58 „ „

The rainfall for 1906, also the average rainfall for the previous 25 years:—

Month	Rainfall	Average Rainfall			Excess or Deficit Inches
	1906 Inches		for the past 25 years Inches		
January.....	6.37	...	4.19	...	+2.18
February	3.02	...	3.32	...	—0.30
March	4.01	...	3.37	...	+0.64
April	1.50	...	2.72	...	—1.22
May	4.34	...	2.68	...	+1.66
June	1.17	...	2.78	...	—1.61
July	1.92	...	3.69	...	—1.77
August	3.82	...	4.81	...	—0.99
September ...	1.06	...	4.02	...	—2.96
October.....	6.57	...	4.90	...	+1.67
November....	3.94	...	4.93	...	—0.99
December.....	3.47	...	5.28	...	—1.81
Annual rainfall	<hr/> 41.19		<hr/> 46.69		<hr/>

The deficit or shortage of rainfall during the year 1906 was 5.50 inches.

By an examination of the above table of rainfall, it will be seen that during the year there were eight dry months, and that the rainfall was below the average rainfall for the preceding 25 years, the deficit for the year being 5.50 inches.

To show what this shortage of rainfall means to the water supply, and calculating that one inch of rainfall is equal to 22,623 gallons per acre, and taking the deficit of 5.50 inches, and the 240 acres of gathering ground makes a total of 29,862,360 gallons.

The drainage area to the Jackhouse and Cobbs Reservoirs varies in elevation from 630 feet to 1000 feet above the sea. Certain portions of the moorland from which the water would naturally flow to the reservoirs of the Council have been cut off, and the water diverted by intercepting open sluices and drains in the direction of Cocker Lumb and Cocker Brook, leaving the available area from which water is collected 240 acres. Certain portions of the drainage area or gathering ground have a sharp slope, from which the water flows quickly during times of storm and heavy rainfall; other portions of the area have a gentle slope and from which the water will not flow quickly, except at times of heavy rainfall; therefore it would not be safe to calculate that the loss was more than one-half of the 29 million gallons of water that could be impounded, which gives a shortage to the water supply during the past year of $14\frac{1}{2}$ million gallons of water, which is equal to a loss of 33 days' supply.

The Council obtained a Provisional Order from the Local Government Board on July 20th, 1906, to enable the Council to purchase compulsorily two of the farms on the gathering ground, with a view of having entire control of the farms, so that they may be derelict or used as sheep farms.

In the case of the White Syke farm notice has been given to the owner to treat for the purchase of the farm, and the price will be settled by arbitration.

During the year, several old corroded water mains have been taken out in the streets and new pipes laid, also a number of the water mains that had dead ends have been extended and connected to other water mains to cause the water to circulate and prevent the water from becoming stagnant.

On several occasions during the year, the water has been turned off at the reservoirs from entering the water mains, and the whole of the old stagnant water has been emptied out of the water

pipes, and the mains have been refilled with fresh water from the reservoirs. In addition to emptying the water mains, the dead ends have been systematically flushed out.

Most of the houses in Spread Eagle Street district have had the condemned private water supply cut off, and are now supplied from the Council's water mains.

Belthorn Village Water Supply.

There are 132 houses and 2 cotton mills supplied with water. The population is 528.

The village at its highest point is 1020 feet above sea level; at the lowest point the altitude is 850 feet above sea level.

The top water line of the reservoir is 1058 feet above sea level, being 38 feet above the highest point of the village. There are two filters with an area of 80 superficial yards. They are together capable of filtering 24,000 gallons of water per day, which is equal to twice the quantity of water delivered to the village; so that when one of the filters is stopped for resting, the other will filter sufficient water for the daily supply. The total depth of filtering material is 4 feet.

Also there are two service water tanks with valves fixed to work each tank separately. The two tanks have a holding capacity of 12,000 gallons, working them at 4 feet deep. This is equal to one day's supply.

The filtered water supplied to the village is of good quality.

The capacity of the reservoir is 800,000 gallons, which is equal to 80 days' supply; but the supply of water to the reservoir is assisted by the springs on the gathering ground. The water in the reservoir was kept within 12 inches of the top water line, and the residents in the village had an adequate supply of water during the whole of the past year.

The supply of spring water is required, not only to keep up an ample supply of water to the village, but to improve the quality of the water for domestic purposes. The water from the upland moor to be used by itself is not suitable for domestic purposes, as some of this water has a distinctly acid reaction, and is therefore possessed of lead dissolving powers, and would act upon the lead service pipes to the houses.

During wet weather the reservoir is full of water, therefore most of the drainage water from the moors is turned away to waste, and not allowed to enter the reservoir.

Previous to these waterworks being constructed, the residents in the village had to rely for water from wells. It was found that one well that supplied the greater portion of the residents was polluted with drainage from leaky privy pits, and the water in another well was polluted with surface water from meadow land.

Rainfall from January 1st to December 31st, for the following years :

1881.....56.30 inches.	1894.....52.71 inches.
1882.....63.23 ,,	1895.....46.41 ,,
1883.....51.98 ,,	1896.....52.00 ,,
1884.....42.84 ,,	1897.....56.44 ,,
1885.....45.53 ,,	1898.....43.69 ,,
1886.....52.46 ,,	1899.....46.20 ,,
1887.....29.93 ,,	1900.....50.11 ,,
1888.....37.07 ,,	1901.....34.14 ,,
1889.....41.53 ,,	1902.....33.60 ,,
1890.....50.43 ,,	1903.....56.42 ,,
1891.....60.16 ,,	1904.....35.97 ,,
1892.....50.42 ,,	1905.....36.16 ,,
1893.....50.78 ,,	1906.....41.19 ,,

Average rainfall for the 25 years—1881 to 1905 inclusive, 46.69.

Black Smoke. A number of observations have been taken during the year, but there was no occasion to make complaint, as in each observation it was found that the limit of eight minutes of black smoke per hour had not been exceeded.

Bakehouses. The Bakehouses have been inspected, and found to be satisfactory.

Cowsheds and Dairies. Sanitary improvements continue to be made to the farms. During each inspection of the premises, where sanitary defects are found, the occupiers are made aware of the defects, and the owners are communicated with to remedy structural and sanitary defects.

The owner of Sough Pit farm, after being pressed to remedy defects at the farm, has done considerable repairs.

New Streets and Building Bye-Laws. During the course of erection, all new houses are inspected, and during the laying of all drains—the fall in the pipes and cementing of the joints is carefully examined, also the fitting up of water closets and baths.

A minimum of 150 superficial feet of yard space is given to each house, and a back road of 12 feet wide behind each block of houses is provided.

The subsoil of the built upon portion of the district is mostly marl and clay, therefore damp-proof courses are put into new buildings to prevent the damp from striking up the walls. This portion of the district is situate at an altitude from 400 feet at the lowest portion, to 580 feet above sea level. Stanhill Village, Broadfield, and Belthorn Village are mostly upon the grit rock, which crops up to the surface in a number of places. These villages are upon the higher altitudes—from 600 feet to 1000 feet above sea level.

The Factories and Workshops Act, 1901, and Part iii of the Public Health Acts Amendment Act, 1890.

There are now 18 of the cotton mills and large factories that are provided with water closets and urinals, and 10 have the ordinary pail closets and privies. Those factories that are within the water supply and drainage area, are being pressed to alter the privies to the water carriage system.

The mills have again been examined with a view of getting easy escape from the mills in case of fire.

Upon notices being served upon the owners of Brookside Mill to provide easier means of escape in case of fire at the mill—they have made alterations by providing another outlet doorway and escape by a staircase.

7 of the high spinning mills and factories are provided with iron ladder fire escapes on the outside walls of the mills.

There are now 65 workshops upon the register.

39 of these workshops are provided with water closets, the remainder have the ordinary pail or privy closet. Where these workshops are within the drainage and water supply area, the owners are being pressed to abolish the privies and fit up water closets.

The workshops have been kept in a clean state, and the walls limewashed where required.

The air space upon measurement in each case has been found satisfactory.

Two workplaces complied with notices and had the premises whitewashed.

One large cotton spinning mill has been erected during the year, and extensions to a weaving shed. Each of these has been provided with the required water closets and drainage.

Moscow Mill Heald and Reed Works have been reconstructed, and provided with water closets and drains complete.

After notices were served upon the Directors of the Hippings Vale Cotton Spinning Mills to pull out the old defective closets and put in modern water closets, urinals, and drains; the Directors expended over £100 in providing new sanitary conveniences.

I remain, Gentlemen,

Yours obediently,

ROBERT N. HUNTER,

Surveyor & Sanitary Inspector.

